

SOUTH AUSTRALIAN DIVISION ISSUE

AMATEUR RADIO



Published in the interests of the Wireless Institute of Australia, Official Organ of all divisions of the W.I.A. and R.A.A.F.W.R.



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SEPTEMBER, 1938

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AMATEUR RADIO

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EDITORIAL

THE SOUTH AUSTRALIAN DIVISION

Amateur Radio, both to the newcomer as well as to those of us who have been associated with it for years, is recognised as the greatest of all hobbies. From the very first, when one passes through the stages of building BCL receivers, SW receivers, learning the code and so on until one emerges as a fully-fledged ham, there is a delight and thrill in every moment spent. On through the stages of designing the station, endeavouring to keep the expenditure of the station of our dreams within the confines of our purse, on through the testing of aerials and the acquisition of the DX Bug. DX, QSL's by the hundred, plenty of lost sleep, until finally those coveted W.A.C. and W.B.E. certificates are hung proudly on the wall. Then a pause for breath, for the preceding few months have been hectic in the extreme. Whilst ruminating, some ideas take shape in mind that were not appreciated before. DX—yes, it is certainly a thrill, but one does get a little tired of such a continuous run of somewhat empty QSO's; operating—a successful QSO depends almost more on the operator than on the combination of receiver and transmitter, something not previously suspected. And Amateur Radio

itself—not composed, as one perhaps imagined at first, of hosts of individual Amateurs all over the world, but a huge organisation throughout the world headed by the I.A.R.U., and made up of societies in each country affiliated with it. ORGANISED CO-OPERATION is the secret of the successful continuance of our hobby, our well planned International Contests prove it, our representation at the recent Cairo Conference proves it, our friendly relationship with the P.M.G. Department here in Australia, through our own Society, the W.I.A., proves it.

The majority of Amateurs in each country belong to the Society run there, but those who are not members are enjoying all the fruits of the efforts of their fellow hams who are working hard for the good of the Hobby as a whole. It is beyond all shadow of argument that every Amateur, who has the continued well-being of his Hobby at heart, should be a member of the Wireless Institute of Australia, which is standing up for his rights and working in his interests; in fact, is the focal point around which his whole Amateur existence should revolve.

Studio Acoustics

Our knowledge of sound distribution is being immeasurably augmented, and to such an extent that larger stations overseas are rebuilding their studios time and again in order to keep up with the rapidly developing technique of broadcasting.

Before taking up acoustic defects, however, we must be clear on the manner in which sound is radiated. The sound waves in air are caused by the vibration of some object, and the normal form of radiation is that of an expanding sphere. Thus the sound travels in all directions and at all angles, but as the expanding wave gets further from the source, its amplitude decreases as the energy is spread over a larger area—the amplitude of the energy varies inversely as the square of the distance. The reaction of the ear is logarithmic, however, so that the apparent decrease is not nearly as rapid as the actual sound energy; while to produce a noticeable increase of sound at a given point, this requires a very considerable increase in the power producing the sound.

Echo, due to the reflection of sound from a smooth surface, is perhaps one of the worst features. This can be eliminated by designing the studio with walls and ceiling broken up to produce irregular distribution, although curved walls and ceilings should be avoided with the rectangular variety being universally satisfactory.

It is comparatively easy to remove echo, although another problem is evident in reverberation. And in the case of excessive reverberation, the sound is defused in all directions and its regular repetition is destroyed—but if the surfaces are hard and do not absorb sound waves, the sound reflected back and forth in all directions results in hopeless confusion. These surfaces, therefore, must be treated with sound-absorbing material to ensure that sound will die away rapidly.

Dead spots are the result of echo-producing conditions. When the sound wave reaches the observer 180 degrees out of phase with the direct sound, the intensities are about the same and almost complete neutralisation will result. On the other hand, standing waves occur when the reflected and direct sounds reach the observer in phase and reinforcement is evidenced by the sound level being increased. This point is called a "sound foci," and is often caused by domes, although the exact paths of the sound are usually difficult to locate.

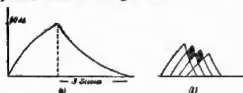
The results of this sound reflection manifest themselves in several ways, and are due to the sound waves being unable to continue their spherical expansion indefinitely, so are reflected inwards. Frequency distortion occurs because the average surface absorbs the high frequencies more than the lower ones, with a consequent loss of high frequency energy at all points. Frequency and phase distortion come from the interference of sound waves reaching the observer from different points out of phase. And sometimes, the observed sound persists after the original ceases which causes echo and reverberation.

The sound level actually varies widely at different frequencies due to reverberation; but since the human ear is not critical and no wide bands of frequencies are discriminated against, the result is not as bad as it would appear from measurement.

So far, it would appear that all reverberation is bad and the ideal condition would be perfect sound absorption by room surfaces so that the reverberation time—the time the sound persists after the source has stopped—would be zero. This, however, is not the case. Anyone who has experienced such an approximate condition will realise the particular "dead" sensation.

Sound or speech in such a studio would have no "life," which is en-

tirely undesirable. Music is undoubtedly improved by a certain amount of reverberation; while the amount of energy in speech is very small and in a very large hall the speaker often would not be heard if it were not for a certain amount of reflected energy from low absorption walls. On the other hand, if the reverberation is too great, the articulation would be poor—articulation is the degree to which the syllables and words of speech are intelligible. It is excessive reverberation that causes the syllables and words to run together and make the speech less intelligible.



There is, therefore, the optimum reverberation time for a certain set of conditions which for speech is less than for music, although in a small room the amount usually is negligible. In a large auditorium, however, this may be several seconds, and without adequate treatment may easily be great enough as to be useless for speech. The amount depends upon the ratio of: Volume (cubic feet of air in a room) Area and absorption of walls and other surfaces.

The reverberation time is equal to the time in seconds required for a sound to decay the inaudibility from a value of 10.6 x minimum audible signal, that is, for a signal of 60 db level to decay to inaudibility (zero db is taken as the threshold of audibility).

Reverberation time equals

$$.05 \frac{\text{volume in cubic feet}}{\text{Total absorption units.}}$$

This equation is strictly true for a source of sound in a cubical room with all surfaces similar, but it is sufficiently accurate for most practical work. One absorption unit equals 1 ft. x 1 ft. of total absorption which could be represented by an open window one foot square as an open window is a 100 per cent. sound transmitter.

Since the ideal for speech and music is somewhat different, a compro-

mise condition must be reached, and in practice most attention is given to speech, for unless it is clear and intelligible, it is a failure. Also, the average person is not qualified to judge good music, and therefore certain discrepancies are not as noticeable as in speech.

Figure 1a shows the growth and decay of a sound of 60 db in a highly reverberant room, and under this condition, speech is not intelligible, because the part of the sound effective in articulation is very small. This is shown in Fig. 1b, where the overlapping of high-level sounds makes the peak variation almost undefined. By increasing the absorption and thus reducing the reverberation time, the hang over of sound is greatly reduced; while the sound is not so loud as before, although it is much more intelligible. This is shown in 1c, and 1d illustrates a case of absorption carried too far when the sound becomes harsh and gives a staccato effect. A little more reverberation than shown in 1c is desirable.

The quality of sound largely depends upon articulation. Speech is made up of syllables and words, so that if each syllable and each word is clearly defined and distinguishable, then the percentage of articulation is high and the speech is fully intelligible. Reverberation or any



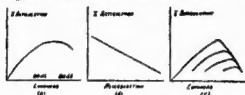
other effect that causes the syllables or words to run together and not be clear-cut decreases the percentage of articulation. Fig. 2a shows the effect of loudness on articulation, where it will be seen that after the level goes above 80 db, the percentage of articulation decreases.

Figure 2b shows the effect of reverberation on the percentage of articulation, which, for a theatre of average size, is decreased about 7 per cent. for each added second of time that reverberation lasts.

The human ear is adapted to hearing one thing at a time, because in the presence of any foreign noise, the audibility is decreased, giving the same effect as deafness. If the volume of speech is increased in an attempt to get above the noise level,

the percentage of articulation is decreased. This is shown in 2c. However, the percentage of articulation need not be 100 per cent. to give acceptable speech, as shown in Fig. 3. The ideal condition gives about 95 per cent. articulation, and an acceptable condition is taken at about 75 per cent., which gives very good intelligibility.

Since the reverberation time is a comprise figure to give both acceptable "fullness" of music and intelligible speech, the question now arises as to what factors may be used to control the reverberation time. Fortunately the human ear is not particularly critical, and there is a quite reasonable tolerance which



is very necessary because of the factor of absorption that helps, along with volume, to determine the reverberation time. Of these, it will be quickly appreciated that the audience may vary over quite wide limits, so it is very necessary that the reverberation time is not too great with a small audience and not too short with capacity audience.

The reverberation time is a function of volume, and this is shown in the equation:—

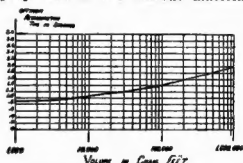
$$\text{Reverberation time equals—} \frac{.05 \text{ volume}}{\text{absorption.}}$$

Thus the larger the studio, the greater will be the time — other things being equal. And this is not an undesirable feature, since experience shows that the optimum reverberation time should be greater for a large studio than a small one. Some reverberation is due to reflection back and forth from the room surfaces, so that if the surfaces are further apart—room of greater volume—a given number of reflections will require a greater time interval.

Experiments and calculations by acoustical laboratories and others show that the optimum reverberation time for musical reproduction varies from about .85 second for a volume of 1000 cubic feet to 1.08

seconds for 10,000 cubic feet, 1.4 seconds for 100,000 cubic feet, and 2 seconds for a volume of 1,000,000 cubic feet. This is shown in the curve in Figure 4. Thus given the volume of a studio, which can easily be calculated from measurements, a comparison with this curve will quickly demonstrate what the approximate reverberation time should be. A detailed survey of all room surfaces and objects will enable the computation of existing absorption units, this figure in conjunction with the volume being used to determine the actual time of reverberation and the result will show whether or not corrective treatment is required, and, if so, how much.

The determination of the amount of absorption present, and the expression in terms of absorption units is not difficult, although somewhat tedious. Before attempting such a problem, however, it is necessary to know something of the absorption properties of the various materials



as compared with the absorption unit. As this varies with frequency, 512 cycles has been adopted as the frequency at which absorption coefficients are expressed. Table 1 shows the absorption co-efficients of many commonly used surfaces.

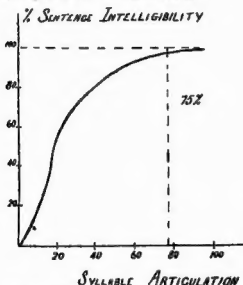
Table 2 shows the total average absorption by individual objects in terms of absorption units and since in practice, variables will exist, in very few cases can an optimum condition as shown in Figure 4 be maintained. It becomes necessary, therefore, to know what variations from the optimum may be tolerated. Experience of acceptable acoustical quality has enabled Table 3 to be prepared, although they are merely close approximations, so that in design and treatment, effort should be made not to approach the outside limits too closely. These figures are

Amateur Radio

recommended by the Bureau of Standards of America.

An example of a survey and treatment will more clearly illustrate the process of computing the reverberation time. And in this case, we shall take a studio having the following specifications:—

Studio, 80ft. x 60ft. x 20ft.; Volume, 96,000 cubic feet; Cork tile floor, 80ft. x 60ft., equals 4800 square feet; 3 carpeted aisles, 4ft. x 80ft., equals 960 square feet; Plastered ceiling, 80ft. x 60ft., equals 4800 square feet; Plastered walls, 280ft. x 20ft. equals 5600 square feet; 600 Upholstered seats having absorption of 1.2 units each.



Total absorption when empty:—

Floor, 4800 - 960 (aisles) equals 3840 x .03 equals 115 units.

Aisles, 960 x .2, equals 192 units.

Ceiling, 4800 x .003, equals 158 units.

Walls, 5600 x .033, equals 185 units.

Seats, 600 x 1.2, equals, 720 units.

Total, 1370 units.

Reverberation time (empty) equals:

$$\begin{array}{r} .05 \text{ V} \\ \hline \text{Abs.} \\ .05 \times 96,000 \\ \hline 1370 \end{array}$$

Equals 3.5 seconds.

For one-half audience:—

Add 300 x 4.7, equals 1410 (absorption for 300 people).

Subtract 300 x 1.2 equals 360 (seats replaced by persons), equals 1050 units.

Thus the total absorption now is 1370 plus 1050 or 2420 units.

Reverberation time equals—

$$\begin{array}{r} .05 \times 96,000 \\ \hline 2420 \end{array}$$

Equals 2 seconds.

Table 3 shows that this is somewhat high as the time for one-half audience for a volume of 100,000 cubic feet (close enough for actual volume for use) is 1.5-1.8 seconds. For maximum audience:

Add 600 x 4.7 equals 2820 units

Subtract 600 x 1.2, equals 720 units

2100 units

Total absorption now, 1370 plus 2100, equals 3470 units.

Reverberation time equals—

$$\begin{array}{r} .05 \times 96,000 \\ \hline 3470 \end{array}$$

Equals 1.38 seconds.

This is almost exactly the best time for the studio, but maximum audience cannot always be depended upon, and the reverberation time is somewhat high for half audience. The reverberation time for one-half audience can be reduced to 1.7 seconds.

Absorption Units equals—

$$.05 \times V$$

Reverberation Time.

$$\begin{array}{r} .05 \times 96,000 \\ \hline 1.7 \end{array}$$

Equals 2824 units.

The present absorption with one-half audience is 2420 units, and so it will be necessary to add 2824-2420, or 404 units. This correction may be accomplished by the use of acoustic tile, which is fireproof, and can be applied in panels on the rear or side walls arranged in decorative designs. The absorption co-efficient of this material is .033 and the added co-efficient of the panels will be .56 minus .033, or .527, and 404 absorption units have to be added.

Acoustic tile needed equals—

$$\begin{array}{r} 404 \\ \hline .527 \end{array}$$

Equals 766 square feet.

With the reverberation time brought well within the accepted limits for one-half audience, the time for maximum audience will now be:—

Reverberation Time equals—

$$\begin{array}{r} .05 \times 96,000 \\ \hline 3470 \text{ plus } 404 \end{array}$$

Equals 1.24 seconds.

As shown in Table 3, this is within the acceptable limits, although rather near the lower end, and with full audience the studio may seem slightly "dead." The "best" time now, however, is obtained somewhere between half and maximum audience which is a desirable condition, and the quality of both speech and music will be good with an audience of any size.

But acoustic materials can be obtained in practically any desired form, decorative and plain, so that when making any such survey, it is advisable to get in touch with the manufacturers of the acoustical materials, who are glad to furnish complete information on their product, technical data, method of installing, and often when desired an engineering service, and advise on any particular problem. The foregoing, however, will indicate the procedure and how the acoustic properties of a studio can be improved in order to obtain higher quality in broadcast transmission.

Table 1.

Acoustic tile	.56
Brick wall (18in. thick)	.032
Brick wall, painted	.017
Brick set in Portland cement	.025
Plaster on lath	.033
Plaster on tile	.025
Celotex (½ in. thick)	.200
Concrete	.015
Cork tile	.03
Glass (single thickness)	.027
Marble	.01
Varnished wood	.03
Wood sheathing	.061
Ventilators (50% open space)	.50
Linoleum	.03
Cocoa matting, lined	.17
Carpets, unlined	.15
Carpets, heavy, with lining	.25
Hair felt, 1in., with unpainted membrane	.55
Hair felt, 1in., with painted membrane	.25 to .45
Hair felt, 2in., with unpainted membrane	.70
Hair felt with painted membrane 2in.	.40 to .60
Cretone cloth	.015
Curtains, chenille	.23
Curtains, with heavy folds	.50 to 1.0
Oil Paintings, including frames	.28
Oriental rugs, extra heavy	.29

Table 2.

Audience, per person	4.7
Church pews, per seat	.2
Seats, upholstered, depending on material and lining per seat	1.00 to 2.5
Seat cushions, per seat	2.16 to 2.27
Settees, upholstered, in hair and leather, seat and back, per seat	3.00
Wooden seats	.10

Table 3.

Volume in cubic feet.		Acceptable limits of reverberation.	
		Time in seconds.	
		Half Audience.	Maximum Audience.
10,000		0.9-1.2	0.6-0.8
25,000		1.0-1.3	0.8-1.1
50,000		1.2-1.5	0.9-1.3
100,000		1.5-1.8	1.2-1.5
200,000		1.8-2.0	1.4-1.7
400,000		2.1-2.3	1.7-2.0
600,000		2.3-2.6	1.8-2.2
800,000		2.5-2.8	1.9-2.3
1,000,000		2.6-2.9	2.1-2.5

VK3 TEST ON 5 METRES.

5 Metro Signals Heard in Western Australia.

Experimental shortwave transmission on the five metre band on May 21 and 22, 1938, times stated being Perth time.

3.30 p.m.—Record, followed by VK3WI 2 channels, 56, 31, 56. Anyone with facilities to report, Victoria, Australia, all over the world.

3.45 p.m. — Record, violin, "My Thoughts Go Round the World" (singer, R. Crooks), followed by Morse Call, VK6WI, Talk, Morse Code.

4.15 p.m. — Call. Standing by, looking around the band.

8.30 a.m.—VK6CN (?) calling VK3WI, Morse. J.R. Talk. Power 100, Beam 4½, ordinary curtain layout, etc.

9.55 a.m. — Talk. Amplification 2A5? H.F. May be gaining—single distance—3 years or just on 3 years reception. Building 3—up-to-date probably coming winter months — weather down here — rain — dry up — last year. So—

(From George A. E. Major, Roselyn, Somerville st., Manjimup, W. Aust. 22nd May, 1938.)

A Necessary Evil

(By VK5PN, W. L. Pearn).

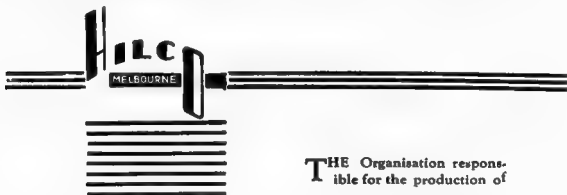
If there are such things as necessary evils, I should imagine that the inoffensive-looking domestic electricity meter qualifies for inclusion in that category. As it appears to be an essential adjunct to the electrification of the home I suppose we must make the best of it. But, how? Well why not make it do a few little measuring jobs for us as well as its main function of running up an account for us to pay to the electricity supply concern.

The usual type of meter is really an integrating watt-hour meter, but we can make use of it as a watt meter.

In all of these instruments a disc-type of rotor, or an armature, rotates at a speed that depends upon the load in use. A small window is provided

for observation of the rotor, and a mark on the latter makes it possible for you to count the revs. that take place in a given time. Now, as the speed is proportional to the power in use, we can calculate the power taken by any piece of apparatus supplied through the meter.

Here is an example. A three-stage telephone transmitter, together with modulator and power supplies, is found to cause 7 revs. of the meter disc in 65 seconds, whilst idling, i.e., filaments burning but H.T. not switched on. Switching on the H.T. and connecting the antenna causes the meter to speed up to 16 revs. in 58 seconds—for the sake of accuracy the test should be taken over approximately one minute. To determine the power taken from the supply mains we make use of cer-



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tain constants to be found on the meter manufacturers' name plate. One of the following three will be found. (1) The number of revs. per kelyvin (or kilowatt-hour, or Board of Trade unit—all the same thing). (2) The number of watt-hours per rev. of disc. (3) The number of revs. per minute on full load of the meter.

Suppose that in this case we find that the manufacturer states that 40 revs. per min. equal full load, and that the meter is a 200 volts, 5 amps. type. A formula we can use is W equals $\frac{60rL}{S.M.}$ where W equals power

taken by the transmitter, in watts; r equals number of revs. observed; L equals full load of meter in watts; S equals time of test in seconds, and M equals full-load revs. per min. of meter disc.

In this case, with the transmitter idling, L equals 200×5 equals 1,000 watts; S equals 65 secs., and M equals 40. Making use of the formula we find W equals $\frac{60 \times 7 \times 1,000}{65 \times 40}$

equals 162 watts, nearly. With the transmitter on the air r equals 16, and S equals 58, so that W equals $\frac{60 \times 16 \times 1,000}{58 \times 40}$ equals 414 watts,

nearly (no wonder my electricity account is so high!).

Maybe your meter is marked in revs. per kelyvin, say 2,400 revs. equal 1 kelyvin. Taking the same conditions, i.e., 7 revs in 65 secs. with the transmitter idling, and 16 revs. in 58 secs. with plate power on and antenna coupled.

The formula to use in this case is W equals $\frac{3,600,000 \times r}{R \times S}$ where R

equals revs. per kelyvin, and r and S have the same values as previously. Then the idling power is W equals $\frac{3,600,000 \times 7}{65 \times 58}$ equals 162 watts;

and the power under transmitting conditions is W equals $\frac{3,600,000 \times 16}{58 \times 58}$

equals 414 watts. Perhaps you think this is too much, and that you are being overcharged for your electricity as a result of a faulty meter. You persuade the supply people to change the meter. The new meter is marked "1 rev. of disc equals 0.417 watt-hour."

This calls for a different formula, and here it is. W equals $\frac{3,600 \times k \times r}{S}$

where k is the watt-hour constant shown on the name plate, 0.417 in this case. Checking up, we find that r and S still have their original values. Substituting these values in the formula, it is found that W equals $\frac{3,600 \times 0.417 \times 7}{58}$ equals 162

watts for the idling transmitter, and W equals $\frac{3,600 \times 0.417 \times 16}{58}$ equals

414 watts when the transmitter is fully loaded.

As amplified above, one of the formulae given will meet your case. Where the revs. per min. on full load are given, use the formula W equals $\frac{60rL}{S.M.}$ When the revs. per kelyvin are

shown make use of the formula W equals $\frac{3,600,000 \times r}{R \times S}$. And if the

(Continued on page 24.)

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157 ELIZABETH STREET, BRISBANE.
(At Rear of Regent Theatre)

The South Australian Executive

As this is the special issue for South Australia it is only fitting that we should honour those who were responsible for the commencement of the Wireless Institute in South Australia. Although all of the foundation members' names cannot be found on record we at least can publish the personnel of the first council. The Division was formed in 1918. President, J. W. Handly Black, VK5AA; secretary, Clem E. Ames; W. J.

Bland, A. A. Cotton, R. B. Caldwell, VK5BP and H. Coles. To these men we sing our praise, which reminds us of the good old days.

Personnel of the 1938 Council: President, J. Kilgariff; vice-presidents, L. Pearn and W. S. Walker; secretary, C. H. Castle; hon. treasurer, E. A. Barbier; J. McAllister, C. Cheel, A. Rieman, F. Bourne, QSL officer, and E. Rielly.



THE COUNCIL OF THE SOUTH AUSTRALIAN DIVISION.

Back Row (Left to Right).—E. Reilly 5AI, L. Pearn 5PN, J. McAllister, C. Cheel 5CR.

Front Row.—E. Barbier 5MD (Treasurer), J.

Kilgariff 5JT (President), and C. C. Castle 5KL (Secretary).

PERSONAL PARS.

J. Kilgariff, VK5JT.—Joe is well known as ex-VKZ of Alice Springs a few years ago. His famous question was "QRT?" What is the correct him? His way of conducting anything is a slogan in itself—"Do it

now." What with a Comet Pro., a Mid West and now a Super Sky rider, Joe should have no trouble in hearing anything that is on.

L. Pearn, VK5PN.—As the country members' representative, Les. is well

known in ham circles and also for conducting the W.I.A. session on 7mc. each Sunday morning at 9 a.m. Les has great praise for the 809 tube and with two in push-pull, his rig radiates a wonderful signal. Has been on council ever since joining the Institute.

W. S. Walker, VK5WW.—Being on council and secretary since he has had his ticket, Bill never got time to get on the air consistently, but now he has no bindings except for being chairman of the Transmitters' Section and an attractive YL in a country town, Bill manages to be a little more active these days. 802's are the favourite bottles.

C. H. Castle, VK5KL.—Well known as a competitor in Interstate contests and for his activity on the U.H.F. bands, Clarry is the traffic manager for VK5, and for years the scribe of the South Australia Division notes in Amateur Radio, and playing no small part in making this issue a success. Publicity officer is another part of his work for the Institute.

E. A. Barbier, VK5MD.—Known to all as Doc., Mr. Barbier has been the delegate for South Australia to the last two Conventions held in Sydney, and well pleased we are for his clear explanations on all points discussed there. A lesson to all is the way Doc builds and wires up his gear. A sight of perfection in itself. He never ceases to speak about the wonderful good job his T.R.F. receiver does. But now Doc. has changed his QRA, so he will get another receiver. Yes. A Sky Buddy. (Adv!)

J. McAllister.—Joe has been a hard worker for the W.I.A. for years and years. Sometimes receiving very little encouragement or help, whenever there is any function, field day, or meeting, Joe will be there always ready to do his share of the work. A fine example of what a good member of the Institute should be. Many others in this State could take a lesson by doing likewise.

C. Cheel, VK5OR.—Charlie is an old timer in radio, though he has not had his ticket more than five years, many are the incidents he can recall of the old 200 metre days. The

phone from 5CR on 40 metres is well known to most in Australia. Building push bikes is his trade, but when home is active on 5 metres as well. Whilst in Institute activities Charlie is the student manager.

A. Rieman, VK5JO.—Here is another old timer who has staged a comeback to the air and incidentally to W.I.A. affairs. Al has been working DX and taking about it with all the enthusiasm of a newcomer. Of course things have changed during the past few years. Al's return to council and activity have now been somewhat limited as he has again been transferred to where his job needs more attention.

F. F. Bourne, VK5BU.—This year Frank took over the duties of QSL officer and what with building himself a shack outside, it has curtailed his time spent on the air. He may be heard in conjunction with 5PN giving a hand with the Sunday morning sessions. Has also been giving 5 metres another try. Frank's favourite pastime is inventing new "Gin Sling" mixtures and as a sticker he is a champion. It will be remembered Frank spent four nights of his holidays sitting in the rain on the end of a jetty listening for 5mx signals.

E. Rielly, VK5AL.—To most Ted is well known for his 14MC tone. Working Yanks being the majority of QSO's. Ted is a relative newcomer to council ranks but already has impressed as a good man for the job. Helping to strengthen the membership and improving the Institute in general is enough for anyone

Federal and Victorian QSL Bureau

(R. E. Jones, VK3RJ, Qsl. Manager)

Gil, VK9VG, writing on conditions in New Guinea, mentions his difficulty in raising VK3 on 14 mc., and also states that receiving conditions are poor, with plenty QRN. Gil is shortly to take delivery of a new RX—a NC 101X. Full QRA is—V. H. Gilchrist, Power House, Bulolo, New Guinea.

Jim Austin, VK6SA, desires to tender an apology to VK5, VK3 and VK2 hams for his inability to look them up during his trip to the Radio

Amateur Radio

Convention in Sydney during the recent celebrations. Jim had little notice of his being selected to attend on behalf of the VK6 police department, and his time was at a premium during the whole of the trip.

The Czech postal authorities refuse to transport QSL cards at "Printed Matter" rates, and are surcharging all cards arriving at that rate. The C.A.V. are refusing all surcharged cards and advise hams and QSL managers to prepay the postage on cards at letter or commercial paper rates.

The C.A.V. and the national amateur society of Czecho-Slovakia announce a DX contest to take place from 3rd to 11th September, and to coincide with the twenty years' jubilee of the establishment of the Re-

public. The rules are a little obscure in some respects, but it would appear that the contest is confined to Europe.

John Mabbitt, of Lake Boga, Vic., advises that his old call sign VK3KI has been changed to VK3JQ. Does this mean that Jack Brebner, of Belmont, has quit his call sign?

A visitor during the past month was Bill Alder, VK3JE. Bill looks well, and has moved from Yarram to Kyneton, and expects to be on the air again shortly.

Owing to pressure on space in "A.R." and to the ever increasing amount of work in keeping the Bureau functioning as a QSL Bureau should, it has been decided to limit cards on hand to four times annually. Lists will appear in the November, February, May and August issues. Cards may be had by application at the Bureau at any time.

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Station VK5LC Winner VK5 Country Station Contest

Came on the air 12th September, 1931 (the op's birthday) with a TNT oscillator, 600 volt a side transformer, two 281's as rectifiers and an input of 25 watts. The antenna was a full wave Zepp. The receiver TRF A442 RF, 115 DET, 409 1st audio, B405 2nd audio, powered with a B and C eliminator. The location was Caltowie township 5½ miles from where the operator lived on a farm. With this equipment five continents were contacted three times in a week on 40 metres during a South Australian DX Contest. Was runner-up in the contest although the station was only one or two months old and the op. had to go 5½ miles to operate the same. The operator soon tired of this journey so 5LC on 29/3/32 was shifted to the farm, but a big problem arose, Power, and it is today a problem. A secondhand 32 volt lighting plant was purchased and an alternator constructed on a very crude method,

The day arrived for a try out and what a disappointment; the regulation was shocking. Press the key and the filament of the 210 go almost out. This was a six pole instead of eight, so eight pole made up and much better, but still not right. Ah! Too much iron or stallo in secondary coils, so made the pieces into a T and only the pieces 1 inch square instead of about two inches and then things worked beyond expectations. With it connected to 600-0-600 transmitter, 2-281 rectifier, 350-0-350 and 80 rectifier, 47 xtal osc, 210 buffer, 210 PA. All AC filaments, a voltmeter across the output of the alternator and the PA keyed to 90 watts, hardly any movement in the voltmeter reading, no more, and I think not as much as was noticed at 5PK at Georgetown on the A.C. mains. The rx was hooked up with the B and C eliminator and with a couple of 2mfd condensers across the brushes of the 32 volt generator. DX could be worked on 20 and 40 metres in fact phone put across to W on 40 metres and 5LC was entirely (with

exception of the filaments of the rx tubes which were battery tubes) A.C. operated on the farm and very satisfactory too. And every time 5LC went on the air the house 32 volt batteries were charged as well and consequently always fully charged.

On 22/5/33 5LC was shifted to its present location on a farm 2½ miles south from Gladstone, but the power supply had to be left behind due to the fact that the lighting plant was owned and installed by the op's dad. Problem again power; had no engine or anything, so tried an old telephone generator connected up to a cream separator but N.B.G. so went real QRP with the rx batteries and a Hoffmann balanced Colpitts with .9 watt input. Worked all VK and ZL on 80 and 40 metres on CW and VK2, 3, 4, 5 on phone with grid mod. 5LC went off the air from November, 1933, until April, 1934, during which time the YL became XYL or Mrs. 5LC.

A fresh supply of batteries was purchased and with 1½ watts had a try for some 20 mx DX working VS6 and PK4, but found it hard, so a generator and a CC xmitter was put in and things began to happen, could work anywhere but South America, which to date hasn't been contacted. The station to date is a 2 stage CC xmitter with a 6V6G tritet oscillator for 20 mx with 40 mx xtal or straight on 40 mx and 80 mx with 80 mx rook capacity coupled to a 6P6 P.A., input 8 watts, CW 6P6, suppressor modx with 89 and 630 speech amp, G.E. mike receives the old TRF and 5 tube battery super; two six volt batteries and a wind charger, one battery for the 250 at 50 mills generator and one for the filaments (all the A.C. gear lying idle). With this 25 countries on CW and 4 on phone have been worked and winner of the Brandon Cup.

Having found the ideal for low power at low cost of upkeep where no mains are available, experiments were turned to antenna experiments,

although some had of course been done before. The operator received quite a lot of enjoyment out of antenna experiments and being used to having several on tap decided when on shifting this winter from the shack in the back verandah to the dining room-sittingroom alongside of the fire to construct an antenna system that would make several combinations available and still not mess up the room with lead-in wires everywhere, so the one with the three wire lead in was made and is at present the only antenna up at 5LC. Others that have been used were matched transmitter, full wave 80 mx fed in centre, full wave 40 mx fed in centre and 8JK beam (66 feet over all), zepp fed, all with good results.

Was using a 33 ft. vertical zepp. and as it was only 3 feet off the ground at the lower end I thought by putting a horizontal portion on and feeding both in phase the angle would be raised and by swinging the horizontal portion around and fixing it in the direction from which the best DX was coming from have a beam antenna. This was my own theory, but it worked very well on DX, but no difference than with the one half for VK's. After doing good work with it I proudly showed it to a fellow ham and he laughed and said, "Call that a radiator." He wanted me to put up two half waves in phase horizontal, which I did 38 feet above ground, and after calling for four nights without a bite at about 9.30 p.m. on the fourth night changed back to the former (ten minutes to change) and on the first CQ two Yanks were calling me on

the one frequency on QSO and both with a good report, W3 and W4.

VK3 Amateur Exhibition

A very successful ham exhibition was held in the rooms of the institute on 5th and 6th August, also Saturday afternoon. Some really first class gear was on show and great interest was shown in the RME69 with preselector, HRO and the Super Sky Raider, also the Radiotron Senior. Those interested in super het design were able to have a direct comparison which will in some cases, spur them on to improved design, and then again, these receivers, apart from appearance, are not in any way superior to the home built jobs. Some excellent work was included in home made bug keys and many 5mx receivers were in evidence and two way contacts were effected with outside stations during the exhibition.

The winners of the various sections are as follow:—

HF receiver, VK3OC, Super Gainer; HF Transmitter, VK3RH, Portable. Measuring Gear, VK3WG, Frequency Meter. Oddments, including keys, VK3DP, 5mx Receiver.

Suitable cups inscribed are to be awarded to these winners.

No effort to entertain the general public was made as there was not enough room available and it was not extensively advertised for that reason, but those really interested in the different types of ham gear in use, had an interesting time. The committee wishes to thank all who were instrumental in making this exhibition a success.

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Contests Section

(R. F. Cohen, VK2TF, Federal
Contest Manager.)

With the advent of the month of August, the contest season is in full swing again. The D.J.D.C. Contest just concluded was fairly well supported in VK, but conditions generally appeared very poor. Although the European stations were breaking through splendidly, most of us here in VK, especially VK2, experienced great difficulty in raising them. It was not an uncommon occurrence to spend a whole afternoon from 2 p.m. till 6 p.m. steadily increasing the light and power account for the sake of one or two contacts.

This phenomenon may have been due to local conditions, but more probably was due to the new system of scoring inaugurated this year.

With this system 2 points were awarded for each contact other than those with Germany, for which 4 points were awarded. This was entirely independent of the distance covered, with the result that European stations obtained as many points for a contact with W as one with VK.

With a system such as this, Europeans would be content to work one station in each country, each VK district counting as a country, to get a good multiplier, and then concentrate on working as many W stations as possible to bring up their point score. W stations probably averaged R8 in Europe, so why copy weak signals when they are only worth the same number of points. Possibly these were the tactics adopted, so if you did not run up a large score, don't come to the conclusion that you were not putting a signal into Europe, and go and chop down the new beam or decide to rewire the final, just console yourself with the fact that the W stations were putting in slightly better signals and so gained first preference.

So much for the D.J.D.C., and as an antidote for all your pent up feelings, why not have a try in the

new VK-ZL 160 metre contest on 10th September. Rules for this contest were published in July "Amateur Radio," so there is no need to enlarge upon them here. One point might be mentioned, however, with regard to Rule 4, which states:—Stations with which an entrant can work are those beyond a radius of 200 miles, but within Australia, New Zealand and New Guinea.

This distance of 200 miles is the minimum possible for a scoring contact, but need not extend over a district border. That is to say, stations within the same district can contact one another, provided of course, they are situated 200 miles airline or more apart.

From the interest displayed in this contest already it appears that the 160 metre band will be full of signals. There will be room for yours, the contest is only eight hours' duration, so for an interesting evening at the key, with no bandswitching necessary, be in the 160 metre contest commencing 1200 GMT, Saturday, 10th September.

The remaining contests yet to be held this year are the VK-ZL DX Contest in October, an All Band C.W. Contest in November and the National Field Day in December.

The DX Contest this year is being held in conjunction with the New South Wales SesquiCentenary Celebrations and as the rules are given elsewhere in this issue by the VK2 Division, there is no need to stress them here.

With regard to the All Band CW Contest, F.H.Q. hope to run this along similar lines to the recent Fiske Trophy. The rules for this contest will be published in October "Amateur Radio."

The National Field Day to be held in December promises to be the most interesting contest of 1938. Those participating last year had a won-

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derful time and are all busy preparing for the next contest.

Only three months remain before the big event, so if you have not yet designed your portable rig, it is high time a few bright ideas began to take shape, otherwise you may be caught napping and miss the contest this year.

Radio Society of Northern Ireland

LEONARD TROPHY CONTEST.

Open to all transmitting stations in Ireland, EI and GI, and the rest of the world.

Dates of Contest: 1st October, 1938, at 12.00 GMT to 2nd October at 24.00 GMT. 8th October, 1938, at 12.00 GMT to 9th October at 24.00 GMT. 1st October, 1938, at 12.00 GMT to 16th October at 24.00 GMT. 22nd October, 1938, at 12.00 GMT to 23rd October at 24.00 GMT.

Rules: The Contest is open to all licensed transmitting stations. Licensed power must be used. Only one operator allowed at each station, if more than one operator, each operator's score counts separately. All stations must exchange R.S.T. reports to count for points. Stations may be worked once only during the contest. All licensed frequencies may be used.

Method of scoring.—1 (one) point for European contacts; 2 (two) points for African contacts (above Equator); 3 (three) points for African contacts (below Equator); 3 (three) points for North American contacts; 4 (four) points for South American contacts; 4 (four) points for Oceania contacts.

Awards.—For the leading Irish station the Leonard Trophy will be awarded for one year (replica also). For the leading station outside Ireland a Gold Medal. For the second station outside Ireland a Silver Medal.

All logs must reach the hon. secretary R.S.N.I., H. F. Ruberry, 19, Little Victoria street, Belfast, Northern Ireland, on or before 31st December, 1938.

Please look for the Irishmen during the week-ends of October, 1938.

Australia's 150th Anniversary Celebrations

1938 VK-ZL DX CONTEST.

(W. G. Ryan, VK2TI, Contest Manager.)

During 1938 Australia is celebrating her 150th Birthday and the New South Wales Division of the Wireless Institute of Australia in co-operation with the New Zealand Association of Radio Transmitters Inc. will organise and control the 1938 VK-ZL. Amateurs throughout the World will no doubt take some satisfaction in the knowledge that the Government of New South Wales has recognised the Contest as part of the Sesqui-Centenary Celebrations and has made available a monetary grant to publicise and make available trophies for the contest.

The contest is divided into three sections, viz., Senior Transmitting, Junior Transmitting and Receiving. The Senior Section embraces a power limit of 150 watts input to the Final Stage. The Junior Section is limited to 25 watts input to the Final Stage and this limitation is an endeavour to cater for the interests of the QRP enthusiasts.

Three trophies have been provided for each transmitting section. In addition certificates will be awarded to the highest scoring station in each country. In making these awards each W, G, VE, ZL and VK Prefix will rank as separate countries. In order to obtain a certificate it is necessary for the contestant's score to exceed 100 points.

A plea is made to all participants to send in a log irrespective of the number of contacts made. As an inducement a special verification card will be sent to all Amateurs who send in a Log.

Rules—Senior Transmitting Contest.

1.—The Wireless Institute of Australia, New South Wales Division, Contest Committee shall be the sole adjudicators and their ruling will be binding in cases of dispute.

2.—The nature of the contest requires the World to contact VK and ZL. Six cipher serials are to be exchanged. The first three characters to be the RST of the station received

and the last three the number of the QSO. For example, VK2RA may be in contact with W6TI and would send 579055. That would mean that VK2RA was receiving W6TI at RST 579 and that W6TI was VK2RA's 55th QSO on contest.

3.—The contest is to be held from 1200 GMT Saturday, 1st October, 1938, to 1200 GMT 2nd October, 1938, and repeated over same time period during next week-end, namely 1200 GMT Saturday, 8th October, to 12 GMT Sunday, 9th October, 1938.

4.—The contest is open to all licensed Transmitting Amateurs throughout the World. Unlicensed ship and Expedition stations are not permitted to enter the Contest.

5.—Power input to the final stage is limited to 150 watts. Where the National Regulations of any country do not permit the use of this power participants must not exceed the power allowed them by the said National Regulations.

6.—Only one contact with a specific station on each of the bands will be permitted during the contest.

7.—All Amateur Frequency Bands may be used.

8.—Only one operator is allowed to work any station. Where more than one operator has worked a station individual logs must be forwarded under the call sign of each operator and each operator will be considered a separate competitor.

9.—Scoring. Twelve points will be scored by the first contact with a station outside VK-ZL, 11 points for

the second and 10 points for the third and so on until the twelfth will score 1 point. Thus the first twelve contacts will score 78 points and each additional contact after the twelfth will count one point. In all cases contacts are irrespective of the band used. This will apply to all countries except England and the United States of America; in these countries twelve or more (as above) contacts will be permitted with stations having the following prefixes:—G2, 3, 5, 6, 8, GW and GM and W1, 2, 3, 4, 5, 6, 7, 8, 9. The points by contacts in the above manner will be added together and multiplied by the total number of countries worked on All Bands which will give the final score. Each W and G District will not constitute a separate multiplier.

10.—Scoring by competitors beyond VK-ZL. Twelve points will be scored for the first contact with a VK-ZL Prefix Zone 11 for the second 10 for the third and so on to the twelfth contact, which will count one point. Thus the first twelve contacts with a particular prefix zone will score 78 points. Each additional contact after the twelfth will count one point. This will apply to each prefix zone worked. The points scored in the above manner will be added and the total multiplied by the total number of VK-ZL Prefix Zones worked on all bands. Prefix zones are VK2, 3, 4, 5, 6, 7, 8, 9, and ZL1, 2, 3, 4.

11.—No prior entry is required, but each contestant is to submit a log at the conclusion of the contest showing date, time (GMT), band station worked, cyphers exchanged,



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points claimed for the QSO, together with a declaration that the rules of the contest have been followed and that the power limit has not been exceeded.

12.—A large percentage of reports under T8 will render the participant liable to disqualification.

13.—Out of band operation will also be a ground for disqualification. In all cases the National Regulations of each country must be observed by the various competitors.

Entries from ZL stations must reach N.Z.A.R.T. not later than 26th November, 1938. All overseas logs must reach contest committee, W.I.A. (N.S.W. Division), G.P.O. Box No. 1734 JJ Sydney, N.S.W., not later than 31st December. All VK logs must reach contest committee not later than 2nd December, 1938.

Rules—Junior Transmitting Contest.

1.—The contest will be held from 1200 GMT Saturday, 22nd October, 1938, till 1200 GMT Sunday, 23rd

October, 1938, and repeated during the same time period during the following week-end.

2. Power input to the final stage to be limited to 25 watts.

3.—All other rules as set out for the senior contest will apply to the junior.

Rules—Receiving Contest.

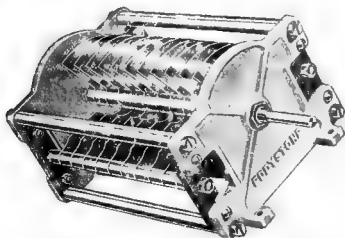
1.—The General Rules for the Receiving Section are the same as for the Transmitting Contests and it is open for any short wave listener in the world.

2.—Only one operator is permitted.

3.—The dates, times, scoring of points, logging of stations and bands used for the duration of the contest are the same as for the transmitting contest.

4.—The contest will cover both sections of the Transmitting Contest. That is to say, it will be held over

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the first and last two week-ends of October, 1938.

5.—To score points, the call sign of the station being called, the readability, strength and tone of the calling station must be entered in the log together with band, time, date. Logging of CQ or Test Calls will not count. Note.—Overseas stations must be logged when calling VK-ZL by Australian or New Zealand listeners. Overseas listening stations must log VKZL stations when they are calling overseas stations.

6.—Australian and New Zealand stations will count their score as per Rule 9 of Transmitting Section.

7.—Overseas stations will count their score as per Rule 10.

8.—Entries must be sent in as per Rule 14.

Awards.

Three handsome trophies are available for competition in each of the Transmitting Sections and will be competed for as follow:—

First.—For that station outside VK-ZL that has the highest score in the World. This trophy will become the outright property of the winning station.

Second.—For that station in Australia or New Zealand who obtains the highest score. The winner will retain this trophy for all time.

Third.—For that district of Australia or New Zealand whose first six participants aggregate a greater score than any other district. This trophy will also be won outright and its property will be vested in that division of the Institute or branch of the N.Z.A.R.T. which has the highest aggregate.

In addition to these trophies handsome certificates will be awarded to the highest scoring station in each country. All G, W, VE, ZL and VK Districts to be considered countries when these awards are being made. The only provision to these awards is that a contestant must score at least 100 points.

Each participant who forwards a log will receive a verification card of Australia's 150th Anniversary Celebrations and Souvenir of the 1938 VK-ZL.

VK2TI, Contest Manager.

Contest Committee:

H. Peterson, 2HP,

R. Priddle, 2RA,

J. Corbin, 2YC,

H. Ackling, 2PX.

VK3MR's DX Notes

Conditions have taken a turn for the good and great activity is the result in the DASH Contest. This test is the surest way to prove or disprove as to whether your antenna is any good for Europe as every European country is on the job and you soon find out just how much better the other chap gets there before you do yourself, and consequently you want to know the reason! It all boils down to the aerial. It is also very interesting to hear how the different stations "hang" on and can be heard when all other Europeans are just audible or missing altogether, and it is also most interesting to note the way the northern Europeans come in first and then following closely are the rest of European countries. This is the short way across. Speaking of tests. A local ham mentioned that there was a test on in England during July as he heard lots of G's calling "test" . . . what about the VK5 who heard a G calling CQ on fone, and coming in R8 too! I thought those fairy tales had died a natural death. VK2ADE had 880 contacts in the W test last March; score claimed is 104.880 points! Multiplier of 40, what a score. He has worked 127 countries and 92 verified. VK2DG, in spite of inactivity, still can manage some juicy dx, has also degenerated to fone and worked HC2HP, 14250 kc at 1845 EST., also HK3AL, 14350 kc at 20 30. On CW he has worked PY2HM, 14325 kc at 2030 and CE3DU, 14360 kc at 1430. A rare one heard is LX1AO, just outside of the HF end of the band, which still maintains its popularity for rare stuff. 3XV managed to work PY2DC using about 8 watts in TPTG, and the usual stations; gets an excellent note out of the self excited rig. The W's are very anxious to know the gra of AH2BU, work it out.

Little activity reported from VK7 as 7YL is off the air. We regret to hear that you are not enjoying the best of health Joy, but get ready for that medal for the October test.

By using 66 ft. top feeders 1 and 2 we have half wave 40 mx zepp. By using 132 ft. top and feeders 2 and 3 we have full wave 40 mx zepp. By

That the aerial is the only thing that counts for real consistent dx is again amplified by a comprehensive report from 3BM at my special request. These country chaps hide their light under a haystack! He uses a pair of 801's in the final and modx by pair 2A3's PP in the usual 3BM style and has 50 watts to amuse the SWL's with. Antennae consist of 12 half waves per side of a Vee beam for the States and 10 half waves per side on similar beam for Europe, using zepp feeders about 170 feet long. Reception on the beams is two points better over a doublet 60 feet high and 130 feet long. When conditions are good the real value of these beams are not appreciated to the full, but when poor conditions prevail, they do their stuff in fine style as proved by the consistency that he works the G's when all other VK's have faded out. A real fone man at last! An interesting qso with G6DT found our old friend VK2XU on the mike who is staying over there for about five years.

3NP Antenna Experiments

INTERESTING RESULTS OBTAINED.

(Notes by VK3ZX.)

The poor dx conditions of late have given 3NP ample opportunity to obtain some interesting comparisons in the "pros and cons" of various popular radiating systems. The results briefly have been his proof, that the horizontal radiator is definitely superior to the vertical systems, as an all conditions aerial. He has proved that when conditions are good, any type of radiator will give good results, and this fact has been borne out by the results, that certain stations are experiencing now with the present DX lull, on the same aerials that gave such outstanding results in the good times. Most of these aerials are of the vertical type.

With the assistance of VK3KU tests were first made with vertical aerial by 3NP with various spacings between elements. Original aerial tried consisted of 2- $\frac{1}{2}$ wave dipoles spaced 1/20 wave and made rotatable. Both elements in this aerial were directly excited from a Zepp

feed line. From observations made, it was ascertained that this type of aerial gave a very strong field locally, but had no directive properties. As the object of the experiments were to obtain a close spaced aerial easily rotatable and having a fairly high Gain, the original job was taken down and the spacing between elements increased to 1/8 wave and the bottom ends of the dipoles were bent in at right angles towards each other, and terminated at a spacing equal to that of the feed line, that is 3 $\frac{1}{4}$ inches.

This aerial was also rotatable and fed with the same zepp feeders as the previous one. The results obtained with this aerial were quite good as it had decided, directive, properties both on reception and transmission. Although the directive properties on reception were more marked when receiving vertically polarised signals. For instance, it was quite easy to reduce the signal strength 2-3R points on one local station by merely rotating the aerial system. It was on transmission, however, that the directive properties of the antenna were evident. Test made with 3KU revealed that when the aerial was rotated through an arc of approximately 3 inches the field strength peaked sharply. This was also borne out later, when contact was made with a station in Copp's proving that with this aerial it would be necessary to orient it directly on the station one wished to contact if the true gain of the aerial was to be realised. 3NP, after satisfying himself that the aerial was working reasonably well, an opportunity was taken to try it out on DX, but the results were not as gratifying as anticipated. However, the aerial was persevered with and although several DX stations were worked, the reports were poor.

The vertical aerial was then dismantled and reverted back to the old standby "2- $\frac{1}{2}$ waves-in-phase." With this type of aerial it was quite easy to contact dx stations, which it was impossible to contact with the vertical. NP took the opportunity of making a comparative test between the horizontal aerial and vertical aerial, and found that when it was not possible to make contact with

(Continued on page 24.)

28 and 56 M.C. Notes

(By A. Pritchard, VK3CP.)

Since last month 10 metres has begun to show life again and at present all continents are being heard except South America. The South Africans are on the job again with several new stations showing up. As far as I know the Europeans have not been qso'd for several months, but the best heard here is F8ZE, who peaks around 6 p.m. at the low frequency end of the band. Observations with antenna systems seem to indicate that the 8JK beam is losing popularity, and the H type is showing its very superior qualities for all the year round service. Also two half waves in phase are excellent, being easy to tune and feed, but the great advantage of both these types (H type and 2 $\frac{1}{2}$ waves) is that the angle of radiation is not so critical for the time of day, yet the directivity and over-all gain is just as great, giving a more useful signal in the desired direction. Many are using the V beam but this requires such a big space that there are not many fortunate enough to be able to try it out. The $\frac{1}{2}$ wave dipole with close spaced director, is very efficient and many phones from the States rely on its good performance, making an excellent rotary in a small space.

Sunday, 14th August, W9BCX was qso'd here at 10 a.m. and was the only readable phone on the band; he used only 60 W input to a pair of 6L6 tubes in the final but his fb signal was due to the dipole director combination. He reported VK4HR's phone at R8. W6MSQ, using a H type with reflectors, rotatable, dropped from R8 to R3 when a little off the line to us here in VK. K6PCF who was heard r8, qso the States using an H type dropped to r3 each end when an 8JK was switched in. The most consistent W's at present are W6LOY, 6PDB, 6GCX, 6MYS, 6PNO and 6MSQ, who have very powerful sigs during the mornings, heard during the week ends. The hiss cycles mentioned in last month's notes were very pronounced again on Sunday, 31st July, at 1 p.m., and showed fading ZL's before the hiss. ZL1HY during a 3 way qso with 3BQ and 3CP, reported this heavy ionisation, but did not notice any difference with

the strength of signals. At VK3BQ Max has had the best luck with the South Africans, ZE1JU, ZE1JN, ZE1JJ, ZE1JZ being the most consistent. ZE1JU also qso'd ZL3DQ on Sunday, 14th August, and the ZL was called for some time by ZE1JN without success. Ten metres seems the best band for a qso between these countries. ZL1KG has good output and is often heard lately. His outfit has a 6L6G co, 6L6G odub, and PP T20's final with 100 watts input modulated by 4 2a3's in Push Pull Parallel.

Talking of line ups, VK3BQ has rebuilt his modulator and is using resistance coupling from the Reiss mike and also a new Trimax universal modulation transformer giving excellent quality. The modulator here at 3CP has been rebuilt with a 57 pen., 58 tri., 46's class ab2 (triodes) and a pair of 801's in class B. 3CZ is building a similar job, but using 6.3 volt tubes and 809's class B. Trimax driver and universal modulator output trans. in each case certainly make it a pleasure to match up the impedances.

5 meters.—Judging by "Radio" 56 mc notes W6EHM has put up an enviable record with his 400 watts and 14 mc Rhombic adjusted for low angle signals. On Sunday, 7th August, ZE1JZ qso'd VK6SA, who was R9 here during exceptionally good conditions judging by the number of harmonics from other VK's. 6SA, who is using a new 2- $\frac{1}{2}$ waves in phase vertical, has greatly improved signals. VK3BV is the strongest VK3-20 mx harmonic. From VK5, 5AI, 5MV, 5LL and 5RX, also VK4QA, had very powerful 20 mx harmonics between app. 5.30 and 6.15 p.m. the same evening. Later, VU2FY had loud signals but they were very chirpy and unstable. The New Zealanders, ZL1HY, ZL3AY, 2FY, 2BE and 4GM are the most consistent. 2BE is the only one getting through regularly to the States. He uses a V beam with 3 waves in each leg set 52 degrees east of north and is using a Collins rig. VK2GU has r6 fading phone around midday at present and is the only VK2 heard during the month.

(Continued from page 10)

watt-hor constant is specified use the formula W equals 3.600 kr

S

To find the value of L in the first formula just multiply the rated voltage by the rated current as shown on the manufacturer's name plate. The above formulae are useful for measuring the power taken by quite a lot of the gear to be found around the "ham shack," such as soldering irons, receivers, modulators, the no-load losses of transformers and so forth, besides such things as the domestic toaster, radiator, laundry iron, etc. And knowing the power consumption and the price of the kelvin, you can go ahead and impress the Y.F. by calculating how much per hour it costs to use these things; but I guess you will not tell her the truth regards the cost of using your transmitter. Alas! Such is human nature!!

(Continued from page 22.)

vertical aerial contacts were easily made with horizontal aerial.

Although good results were obtained with vertical aerial when conditions were good, these results were not obtained in the conditions existing now, which are definitely not good.

Conclusions: Horizontal type aerial best for all round results irrespective of conditions.

Theory: May be possible to put signals in desired location irrespective of conditions existing, if the angle of radiation is altered to suit those conditions.

Further tests are to be made with beam aerial having varying angle of radiation.

Concluded that angle of radiation from vertical did not suit conditions existing at time of transmission.

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Divisional Notes

To ensure insertion all copy must be in the hands of the Editor not later than the 18th of the month preceding publication.

N.S.W. Division

ZONE 2 NOTES.

VK2HV—Still concentrating on 20 metres, and seems to be getting a share of the DX. Conditions on this band seem quite good for afternoons and early morning, but are extremely patchy at night. Zone 2 members are asked to look for 2HV on 40 metres Sundays.

Arthur, VK2ZP, can be found almost any week-end on 40 metres, and is a member of the early-morning all-States hook up. Although a fair share of DX has been worked on 20, ragchews are the big thrill at present.

VK2ZX has been inactive for some time, as very QRL with work. Recently purchased a couple of 40 metre AT cut crystals, and that conveys to us a little more QRM on 20.

VK2GM has decided to build himself a nice rig around an 809, and will be looking for DX phone and code on 40, 20 and 10.

VK2UJ seems to spend a great deal of his time in research work, and has a number of original gadgets around the shack. H.T. supply is from a genomotor and accumulators, which are kept charged by a home-made wind generator.

Bob and George of VK2AFS-VK2AGL spend most of their time on 40 metre phone, and some very interesting ragchews are had with the locals.

Next month a complete list of Zone 2 stations will be published, and all are asked to send notes to 2HV before the 10th of each month.

COALFIELDS NOTES.

(By VK2KZ.)

VK2KK—Your doings in amateur radio are absolutely dead, Matt, and seeing the reorganising of the area

is under way OM please consider that sub. and get the old rig going on 7 mc. You are getting left behind. Don't let the B Class 2CK get you down OM.

VK2KE.—Well, Bill, OM, you missed one of the finest trips in years when you did not turn up for the prearranged trip to Cessnock. We waited for you, too, at appointed place. Guess the old car would not go or something.

VK2KZ—Yours truly doing very little on the air, but on 14 mc. when conditions good. I wish to thank VK2YO for supplying car and making trip to Cessnock possible, which resulted in four new members for W.I.A. How's that, Mr. Editor, also for QRM created by XYL for rolling in at 12 p.m. (Nice work.—Ed.)

VK2YO.—Well, George, I guess you fared about the same as myself from your XYL, but it only happens about once a year, so guess you can take it.

VK2DG.—Another culprit in the Cessnock trip. I hope your XYL was not too hard on you. We walked into 2DG's shack at 11 p.m. to give it the once over; well, you guess the rest. Shoot the dope down on your new modulator OM.

VK2YL.—Well, Harry, many thanks for arrangements you made with 2YQ, 2CW, 2PZ concerning our trip, and we leave it to you to organise one to come to our end. We will do our best to entertain you all and leave as many pleasant memories with you as you all at your end left with us. Harry is using several types of antennas, mostly beam types on 14 mc. He has a regular ham's paradise of a shack, and likes to crack a joke. Regular on 14 mc., C.W. and fone.

VK2PZ.—Chris interested in 10 metres; has a fine 9-tube super on

10, but rig on 14 mc. using CW only. Winding tranny to suit Class B modulators, and to use PP 809 in r.f. stage on 10 metres. Don't forget that return trip, Chris, and we thank Mrs. Cowan for her hospitality while at 2PZ.

VK2CW.—Bill also using 8JK beam on 14 mc. fone and C.W. Likes an argument on beams and direction, etc. Unfortunately not in employment, but plugs along as best he can with a minimum of equipment. Keep going, Bill, OM.

73. Max.

ZONE 4 NOTES.

Things have been very quiet here for months now, and there has been very little to write about.

Since the N.A.R.C. went out of existence, Newcastle has gone off the radio map.

2BZ still works a few, but has a bad habit of ragchewing across town with 2AEZ and 2AHA on 20 metres. Judging by the power 2BZ uses, it must be quite difficult to cover those couple of miles.

The Vigilance Officer has been after them so perhaps they may wake up. He has also been chasing 2AHA for working a chap repeatedly, who is using a private call.

AHA has been much quieter lately owing to the necessity of earning a crust.

Don't know what's happened to 2UF. Either he's on 10 metres or taking a rest.

2ZC also seems to be very quiet, although apparently still enthusiastic as I see that he has a very nice beam antenna. Maybe he works them in the early A.M.

2ADG and 2AGD.—Very quiet.

2CS and 2SO.—The two old-timers seem to have given up the game altogether.

2UI also seems to be among the legion of the lost.

2MT.—Doing a little (very little).

2TY.—On a bit when time permits. If I could only get hold of the coot who's using my call, I'll "pin his ears back." And I don't mean maybe.

2YL had a W8JK beam up for a few days, but dragged it down again. No good, OM?

2OS—Now up at BCL station 2HR and has ideas of using the 100ft. lattice masts for his matched impedance 20 mx antenna.

2NL—Out at Waratah Police Radio Station causing a bit of QRM to the BCL's around about the district.

Don't hear much of 2AES and 2AFA out the Lake way. I think they're up on 40 using fone.

The local lads here are all buying tickets in the raffle of 2QS's gear. The late George was quite popular with the boys around here, and also throughout the State. Anyone who would like to help? Tickets, 5/-, may be had from 2BZ. Drawn September 30. Limited to 100 tickets. What about it, boys?

Well, cheerio for the present.
VK2TY.

WAVERLEY RADIO CLUB NOTES. (By VK2AHJ.)

On July 12th, the members had the pleasure of meeting Mr. Gray, ZS1CU, who was introduced to the gang by 2TI. Mr. Gray was in Sydney for a few days, and was anxious to meet as many hams as possible during his brief stay. Before leaving he gave a very interesting talk on his travels, and produced a copy of the Handbook that had been autographed by hundreds of foreign hams.

Another very enjoyable field day was held at National Park, and took the form of D.F. Unlike the previous outing, 80 mx. was used for operation. The date set down for the next field day is September 11th, but the location has not been definitely decided. A new scheme was advocated, wherein the party splits up into as many groups as there are portable stations, each group having a picnic of its own, and all maintaining a chain of communication. The

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A perusal of their advertisement on page 34 and a visit to these new showrooms will certainly be to your advantage.

main object in holding this type of field day is to encourage the members to construct gear which would be adaptable to emergency use. Power will be derived primarily from accumulators, thus making each unit as portable as possible. The club would appreciate co-operation from any hams who happen to hear any of the stations operating, and would also appreciate a shout or a report from them. The call signs being used will be 2BV, 2ABS, 2AHJ and 2AFZ.

An amplifier demonstration was given on July 26th by Ted Rogers and Jack Howes, 2ABS.

Alterations are being made to the club room for the building of a new operating position.

Noticed Col Saunderson getting into the code practice the other night. Keep at it, Col, OM, and it won't take long to master—but don't forget the theory!

2FJ, on the verge of a nervous breakdown trying to induce an 8JK beam to beam, was referred to June issue of A.R., and completely cured.

2ABS reports his talkie gear in working order, and has promised to give the gang a demonstration. Should be worth-while hearing. Wow!!

2AHJ has given up spending and taken on saving as a sideline. One way of preventing QRO.

2AFZ has finally trampled his condenser mike underfoot, and is now interested in home-made velocity mikes.

Round-table QSO's seem to be the order of the day lately, so the members are going to hold one every Sunday at 10 a.m.

GLADESVILLE DISTRICT EXPERIMENTAL RADIO CLUB.

The above club has just completed its first six months and is progressing very favourably. Average attendances per meeting are about 20 members, and all as keen as mustard. Owing to the lack of necessary finance we are not yet "on the air," but the club's receiver should be completed almost immediately, and should be the "berries."

On July 15 we had a pound night and swapped yarns (ham ones) over coffee and biscuits. This proved so

popular that it will be repeated at regular intervals. Mr. Walters is to be congratulated on his fine effort as chief cook and dish-washer.

On July 22, we were fortunate enough to have a lecture and demonstration on the "Oscillograph," capably delivered by VK2HB and his assistant from the Lakemba Radio Club.

Commencing about the middle of August a DX contest is to be held in conjunction with the North Suburban Radio Club, over a period of three weeks. All the hams in the club are migrating to 20 for the contest, the winner, by the way, will receive an 809, and the second prize is an 80 metre rock. Non-transmitting members are busy building receivers for a competition to be judged in the near future.

Mr. Manley has given some interesting lecture for A.O.P.C. 2aspirants, and Mr. Fryar thumps the key for the Morse class.

VK2AEX and VK2NP claim to have held the first five-metre contact in the district.

If any readers of these notes should be interested in our club, Mr. Dick Ellis, of 180 Morrison road, Ryde, will supply all particulars, or, if possible, attend one of our meetings which are held every Tuesday night at 8 p.m. in the Protestant Hall, right at the Gladesville terminus.

THE HURSTVILLE AMATEUR RADIO CLUB

(Affiliated with the W.I.A., N.S.W. Division)
(By VK2MZ)

The A.O.P.C. classes held by the Club are being taken very seriously by all members of the club.

Under the capable direction of Mr. W. Laing, who holds a Broadcast Engineer's Certificate, all lectures are found to be very interesting.

A test paper set by Mr. Laing found that all aspirants are taking notice; incidentally, 2VT showed them that the questions could be answered.

The secretary's address is 34 Park road, Carlton, who will be pleased to give any information regarding club activities.

LAKEMBA RADIO CLUB— VK2LR. (Affiliated with the W.I.A.) (By 2DL.)

The total membership of the above club now stands at approximately 90 members and it is anticipated that the century will be reached very soon.

A new transmitter is to be installed shortly and is of the semi-portable variety. Unfortunately, the location of the club rooms is right on the tram lines and at times the electrical interference is very bad. The main events over the past few months have been visits to Philips and A.W. Valve Works, a lecture on antennas by Mr. J. Reed, VK2JR, the weddings of 2HB and 2KS, and the return to the club of 2XW, who has now settled down to married life.

Members still complain of the activities of "pirates" who make use of various licensed calls. Cards are coming to hand for VK2LR from America, indicating the DX activities of these "joeys," while members report hearing other members' calls being used, mostly during week days when the owners of same are at work. It was suggested that the club members who are servicemen, fit DF apparatus to their cars, and pay a few extra calls in the course of their daily rounds.

All inquiries relative to club matters will receive the immediate attention of the club secretary, Mr. V. Bennett, 2VA, 14 Park avenue, Concord.

Victorian Division

TECHNICAL DEVELOPMENT SECTION.

Members desirous of serving the Institute in the T.D.S. for the 1938-39 season are invited to lodge their names with the secretary immediately. The work involved calls for assistance in the rebuilding of the laboratory and construction of certain equipment for members' use. Membership is strictly limited to financial members, of course.

GENERAL MEETING.

A general meeting of all sections of the Vic. Division will be held at Law Courts Chambers on the night of the Key Punchers meeting, 4th

October, at 8 p.m. Business left over from the annual general meeting will be concluded and it is anticipated that a popular lecture will be provided thereafter.

GADSDEN TROPHY.

It was resolved by the Division's Council at the August meeting to appoint an advisory committee whose duties it will be to recommend to council whether any of the applications for the Gadsden Trophy are worthy of the award each year. In the past it has been the custom to award the prize to the best entry irrespective of whether the work was of high standard or not. Should the committee consider the works eligible for the award an adjudicating committee will be appointed to decide on the winner. Full details of the Gadsden Trophy are available from the secretary and entries close this year on 30th September.

COUNCIL FOR 1938-39.

The following members were elected by ballot as members of the council for the new year:—Mr. W. R. Gronow, VK3WG; Mr. M. R. Campbell, VK3MR; Mr. R. Jones, VK3RJ; Mr. V. E. Marshall, VK3UK; Mr. R. H. Cunningham, VK3ML (chairman); Mr. I. Morgan, VK3DH; Mr. K. Rankin, VK3KR; Mr. J. Marsland, VK3NY; secretary, Mr. R. A. Anderson, VK3WY; treasurer, Mr. J. Marsland, VK3NY.

PUBLICITY OFFICER.

The Division badly needs an enterprising publicity man who could look after the general advertising of the institute activities. There is an interesting job awaiting the right man. Could you do it? Communicate with the secretary and have your name placed before the council next meeting, which will be on 13th September.

KEY SECTION NOTES.

(By VK3UH)

VK3BG showed up at the K.P. meeting. Now has Einac 35T.

3YP is back from Brisbane.

3RX is instructing the A.O.P.C. Class.

VK3ET is drilling code into them.

VK3EB—Has built a new 5 mx. received.

VK3ED has 809 and W8JK beam.

VK3XN—Now has excellent fone. but prefers C.W. for DX.

Amateur Radio

VK3QK—Now has new rig. Wkd. HK154 and 90 countries in 18 months.

VK3WO—Has shifted his QRA to Wangaratta.

VK3ZH—Wkd. F7JDY wid 9 watts 59 regenerative osc. Tickled pink.

VK3EQ—Now getting in amongst DX.

VK3BQ—Got two half waves in phase up again only 30ft. high, non rotating, and QSO'd ZE1JV and ZE1JN. Now cutting AT crystals from raw quartz with phenomenal success.

NORTHERN ZONE. (3ZK-3HX)

From the number of zone members who are active on 20 metres, conditions are excellent. From personal observations, the DX is excellent, the W's and G's coming through wonderfully well. 80 mx is very quiet, and locals are absent to a large degree. The ZL's, however, are very active.

3TL—Spends most of his time on 20 mx, but we understand that Treb has not worked very much. Intends to put up another 8JK beam with 4 sections.

3OR—Haven't heard much of Murray, but I guess he is keeping up the good work.

3EP—Ted is spending most of his time on 20 with, we understand, success.

3EC—Is another 20 mx fan now, but had the misfortune to blow up a couple of 10's. Just too bad, Ern!

3BM—20 mx also. Bruce put up a beam on 20, directional on Europe and works the G's.

3CE—Where's Roy?

Ex-7RC—Has ideas about 3CV's mast for ham work, and we can believe it; a 250 foot vertical.

3IH—Still has May as the attraction. Ask some of the boys.

3ZK—Is fast becoming very active; recently heard arranging extra skeds with 3IH.

3HX—Has fits of activity. Has been experimenting with the static velocity mike.

Would like to hear the doings of 3BG, HL, HR, HN, WN, TS, FF, HY, DW and any other members of the zone.

HIGH FREQUENCY FONE SECTION.

Notes on meeting held on Wednesday, 6th July

VK3YZ—Displayed feed wire spreader consisting of $\frac{3}{4}$ inch diameter glass rod with lead castings cemented on each end, lead ends are U slotted to allow clinching to to feed wire.

VK3DH—Suggested the heating of glass rods and grooving on ends while hot to retain wire. Applied pressure tends to bulb ends of glass rod and creating the necessary grip.

VK3PW—Suggested the grinding of small necks in the ends of glass strips, the feed wires being bound on with copper wire and if necessary, soldered.

VK3YZ—Question asked whether current measured in each leg, A and B of a full wave rectifier would be half of the reading in the input lead to the filter. He has two tubes of 100 MA DC rating and questioned the total load at filter. Confusing points were:—(1) Page 274, Jones, 1936; peak plate current, 66 type tube, .6 amp. and the wording in a full wave circuit Fig 2. . . Max. current equals 400 (approx.) mls. for

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2 tubes (which is the R.M.S. value of 600). (2) Page 157, RCA Receiving Tube Manual, 1937, definitely states that for type 81, with each tube at the same operating voltage as for half wave, twice the DC output may be obtained when using 2 tubes for full wave. This gave rise to a varied lot of opinions. Some questioned the pulsating DC arriving at different instants, etc., etc.

COUNTRY SECTION NOTES. (VK3UK)

As I have been away for the month I have not heard any news of a personal nature about the Country Section. VK3MR carried on the weekly broadcast, and in discussing it with a number of the country men a suggestion has been made that the VK3WI broadcast would be more conveniently timed if it were to be sent on a week night instead of a Sunday morning as in the past. The only way to find out which is going to serve the interests of the country member best is to try the suggestion out, so from September 1 VK3WI will be heard on Wednesday nights at 2030 hours, frequencies as before. Your comments and criticisms will be welcome on the change so kindly tell your Zone President or Secretary the next time you contact.

VK3KR, Ken Rankin, who has been elected to the Council, will take over the Country Section from me immediately. The Section is extremely fortunate to have such a man as Ken to look after its interests in the future. It is rare indeed for a man who is so thoroughly conversant with Country doings and the Country members themselves to be available to the W.I.A. to represent them on the Divisional Council, and I know that the Section will progress very well under his guidance.

U.E.F. SECTION NOTES. (By 3JO)

Election of office-bearers for ensuing 12 months:—Chairman, 3JO; Secretary, 3DH; Technical Advisers, 3OT, 3DH; Representative on Council, 3JO; and the responsibility for these notes were handed to 3DH.

Another Field Day.

It was felt that a field day would be welcomed by those at present active on the band, and the date has been tentatively fixed as the last

Sunday in November. More details later, but be sure to be in the fun, boys!

Special Lecture at October Meeting.

Arrangements are under way to provide a very interesting lecture by a member of the P.M.G.'s research lab. The activities of this department are too well known to need mention here, and we can rest assured that a really first-class lecture based on actual experience and experimental work will be submitted and probably demonstrated — but more details next month.

Competition — Prize Offered.

One of our enthusiastic members has kindly offered to donate a prize in the shape of a useful receiving (?) tube for greatest number of stations contacted during the month of October on 56 mc. One point is allocated for each different station with whom contact is established, and a definite exchange of reports must be made and recorded at both ends. Logs should be in writing and submitted to the secretary of this section on or before the 7th November. Anyone is eligible to enter (except pirates), and the prize will be presented at the November meeting to the financial member of the W.I.A. showing the greatest number of different stations worked either fone or CW. This competition will be repeated at an early date. In the meantime, September 20th is next meeting night. Don't, don't, don't miss it, chaps!

South Australian Division

(By VK5KL.)

This month is a special South Australian issue. Although notice was only received of it three weeks before the articles were to be in the hands of the printers we are sure that this issue will be a success. The attendances of meetings have sadly fallen off in this State, but all possible will be done to encourage members to come along and enjoy the company of their fellow hams. A change of routine should liven activity up. There are still a lot of chaps who cannot realise that in a united body the Institute can get things done. With the student class

numbering twenty, the Institute is well represented with enthusiastic budding operators.

On August 24th a social was held in the Institute building. During the evening dancing was enjoyed and supper supplied by the ladies. In all, everyone had an enjoyable time. Everyone's attention is drawn to the field day to be held on October 12th (Eigh Hours' Day).

Apparently subscribers to this Magazine in the various States do not read their divisional notes of the Mag. Many are the times one has seen appeals for skeds or information, etc., asked for, but one never hears of any response, and so WE, the South Australian Division of the Wireless Institute of Australia, appeal for all Amateurs in this State and every State to become a member of your local Division, subscribe to Amateur Radio, or do anything that will help, for we will need it all at the next Convention. We ask you. Are you going to sit down and leave everything to the other chap? Answer "No" and do your bit from now on.

Congratulations go to Les Catford (VK5LC), who has won the two contests held recently—the message handling and the article contest for country members. He will receive the cups in due course.

BARKER ZONE.

(By VK5GW.)

The Barker Zone boys appear to be on holidays, except for the Murray Bridge and Mt. Gambier gangs.

The Naracoorte gang is making slow progress, a few sigs. coming from this area during the last month.

5BG and 5BF—Very consistent with fone on 40 mx.

5YL—Very little heard of Betty. The Naracoorte gang are on the look-out for you, Betty.

5BN.—Has not been heard on fone here yet, but is believed to have had some good fone reports.

5CJ.—Hope you have the new rig going O.K. now.

5TW.—No news of Tom lately. Hope to hear from you soon, O.M.

5XR.—Cam on F.B. fone again. Everything going nicely when a horse ran into a guy wire and

brought the antenna system down. Cam now looking for some more Pyrex insulators.

5PB.—Still quiet. Wattie has gone bush.

5GU.—Bob Gregory, Mt. Barker. Good fone and good enjoyable QSO's. Watch for Bob on 40 mx on Sundays.

5GW.—Puts a rather rough signal out occasionally. Will be on xtal within a fortnight.

The Adelaide gang is very hard to contact at night from Naracoorte. Sigs. fade out except on rare occasions.

WAKEFIELD ZONE.

(By VK5RE)

.....5HS.—Wally is understood to be keen on mustering a carload of the Northern gang to go along to Murray Bridge for the Field Day in October.

5LR.—Believed to be a bit more enthusiastic about 5 metres since having 5HD as a visitor to his shack. Hope that will not mean Jack deserting 40 mx.

Lance Catford will probably make an appearance at Murray Bridge. He also will endeavour to take a carload of Northerners with him.

5RE.—Promises faithfully to attend the F.D. outing in October, to bring the YF and family, and locate the hidden transmitter half an hour before anyone else!

GREY ZONE.

(By VK5PN)

Sorry news of activities in this zone is rather scarce of late. The most important happening of late was the capture of two trophies by VK5LC. Les won the recent traffic-handling contest, and also the special contest for country members only, a description of station equipment suitable for amateurs without power mains. Congratulations, Les, OM. I guess you will have to set aside a corner of the shack for the display of trophies soon!

5KJ.—It is whispered that George is an exponent of Radio Chess. You should keep to skeds though, George.

5YM.—Norm sent along an excellent paper on the theory and construction of a genemotor as his entry for the station equipment contest.

5RJ -Darce heard recently testing a new mike. Very nice, too!

5MP.—Has anyone heard anything of Len? Also 5WG, 5NW and a few more of the gang?

5TL—Tom competed in the station equipment contest, his entry being a very simple and useful portable transmitter suitable for emergency work.

5AT.—Bert is now in the city, but not yet on the air.

COUNTRY SECTION, VK5TL.

The transmitter described below should prove of interest to those who are considering the South Australian Division's scheme for an emergency corps.

There is nothing unusual in its lay-out or construction, and I make no claims for originality.

It is intended for battery operation, but is actually used with a "B" battery eliminator which delivers 135 volts, and has been used on 3.5, 7 and 14 mc., being principally used on 7 mc.

A minimum of parts are required, and the type 19 tube used has proved most reliable, an input of $3\frac{1}{2}$ to 4 watts being readily obtainable on 7 mc. On 14 mc. it is possible to get 6 or 7 watts, while on 3.5 mc. the input drops to about $2\frac{1}{2}$ watts.

On 7 and 14 mc. I have used it on a half wave (on 7 mc.) Zepp centre fed antenna, but on 3.5 mc. it has been necessary to use a Marconi type antenna.

Originally the key was located in the negative A and B lead, but as an unpleasant thump was audible in a B/C super in another part of the house, the keying was placed in the grid return. This had the desired effect.

The tank coils are made of $\frac{1}{16}$ in. diam. copper tube mounted on stand off insulators, and the tuning condensers, 2 old .0005 mfd. from the usual "ham" collection, used as a split stator.

No doubt $\frac{1}{16}$ in. diam. tube and stand off insulators sound incongruous at 4 watts, but it was originally intended that this stage should become a "push pull" final at a later date. However, it makes firm tank coils. The R.F. chokes in the grid leads are 1.25 millihenry types, and

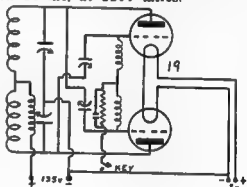
the variable grid condensers 11 plate midgets. A 5000 W. grid lead and .01 grid condenser give satisfactory operation.

The wiring was carried out with 14 gauge copper, which provides solid wires.

For convenience, the entire oscillator unit is mounted on a board 14 in. x 9 $\frac{1}{2}$ in., and the tube stands directly behind the tuning condensers and in front of the tank coils.

The end of a petrol case provides quite a satisfactory base board for this job.

There is no "special way" to do any part of the wiring, and being a very simple rig it does a reasonably good job as my model on occasion raises R8 T9 reports from stations up to 600 miles on 7 mc. and R6 T9 on 14 mc. at 1200 miles.



Tasmanian Division

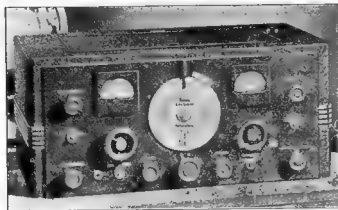
(By 7YL)

As there was no meeting this month owing to unforeseen circumstances, matters which were to be discussed had to be postponed.

We have been notified by our R.I. Mr. Conry, that a division of the I.R.E. is to be formed in Hobart. The first meeting is to be held on the 17th and 7AB will be presented with the I.R.E. trophy won by him during the N.S.W. Centenary Contest.

7CT.—Terry journeyed north a week-end or so ago, and dropped in on several of the northern gang. Is still contemplating building a shack.

7KV.—Keith is so seldom seen or heard that we are thinking of putting a "Lost" advertisement in the local rag.



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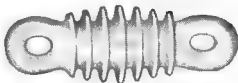


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Amateur Radio

7HM.—Our secretary has had a busy time moving his gear to the new QRA at Sandy Bay. More QRM for the poor Sandy Bayites.

7JB.—Buck is at present building himself another receiver, having sold the spanking new one he built only a short time ago. Is trying a spot of journalism for the local edition as recreation (?)

7LC.—Has changed his QRA from Winnaleah to Queenstown, and is now working at 7QT, the local broadcasting station. Evidently worked quite a lot of DX from Winnaleah, judging by inward QSL's.

7RZ.—After a spell of inactivity has been chasing the Yanks, and has worked a goodly number in the last few months.

Congratulations are extended to Maurice Burleigh, who has just secured his "ticket," and is stationed at Moorinah Power Station; also to the other successful candidates, one

of whom already has had the misfortune to fracture a brand new crystal while experimenting with his new rig.

Little has been heard from Launceston, but we expect to have 7AB down shortly for the I.R.E. presentation.

7SR.—The Army Signals Radio Club, affiliated with the W.I.A., has just acquired a new 7-valve super and should be heard regularly on Mondays and Wednesdays. The xmtr has also been reconstructed, and is now c.c. and working f.b. Contacts with any ham in any State would be greatly appreciated.

7YL.—Disgusted with the exhibition of the rejuvenated 210. It lasted only a day! At present using an E408 which seems to have a tendency to bluish. However, it works efficiently even if it is an ugly looking thing.

Well, that is the issue this month as everyone is becoming quieter and quieter.

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FOR SALE.—Eddystone 1082 transmitting condenser, 3500 volt, 100 mmfd., 35/-; also Frequentite transmitting coil former, up to 90 metres, 7/-; as well as a complete range of Eddystone parts. See Chandlers Pty. Ltd., 43 Adelaide st., Brisbane.

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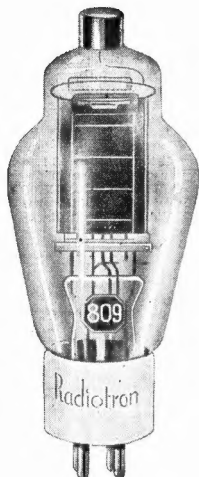
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